

## **Review: Wicked Environmental Problems: Managing Uncertainty and Conflict**

By Peter J. Balint, Ronald E. Steward, Anand Desai, and Lawrence C. Walters

Reviewed by David Jenkins  
*US Fish and Wildlife Service, USA*

Balint, Peter J., Stewart, Ronald E., Desai, Anand, Walters, Lawrence C. *Wicked Environmental Problems: Managing Uncertainty and Conflict*. Washington, DC: Island Press, 2011. 272pp. ISBN 9781597264754. US \$40.00. Paperback. Acid free paper.

A particular class of environmental problems defies simple solutions. These problems are characterized by scientific uncertainty, competing cultural values, and resulting conflict. When scientists disagree, and when citizens fail to share values over resource exploitation, preservation, or some balance between them, the result is what Peter Balint and his coauthors refer to as *Wicked Environmental Problems*.

For some environmental problems there are no good solutions. For these problems, scientific understanding may be incomplete, policymakers may be unable to clearly define the issue, stakeholders may articulate widely divergent opinions on causes, solutions, and preferred outcomes, and resource managers may find their hands tied by political appointees following the shifting winds of presidential elections. In such cases, complexity and uncertainty often render public decision-making especially contentious.

Coupled with scientific uncertainty and divergent cultural values are conflicting political objectives, rapid change in both natural and social systems, bureaucratic inefficiency and cowardice, and differential relations of power—that is who, in the social reality of a given historical moment, makes decisions about natural resource use. Balint and colleagues describe four environmental controversies that exhibit these characteristics: restoration of the Everglades in Florida, habitat conservation in Tanzania, emissions reductions under a European Union cap-and-trade system, and forest management in northeast California. Through an examination of these cases, the authors identify shared characteristics of wicked problems and propose a method to address them.

Neither established precautionary approaches nor adaptive management practices are sufficient to address wicked problems. A precautionary approach stresses least harm to human and natural systems in the context of economic development and resource exploitation, and requires an analysis of risk. Risk analysis, however, is subject to competing views of potential outcomes of resource management decisions. Wicked problems are precisely those that have no general consensus concerning potential outcomes. Some risks are impossible to prioritize; outcomes of others cannot be predicted with any certainty.

As an alternative, adaptive management should be able to respond to novel circumstances; in theory, it is experimental and assumes the possibility of failure. To the extent that adaptive management relies on science and ignores value-based

discussions, however, it produces technical solutions to environmental problems that artificially bracket the influence of humanity from any understanding of the structure and functioning of ecosystems. Yet humans, including their desires, values, technologies, economies, administrative organizations, political machinations, and so on, are directly implicated in ecosystem function. Moreover, risk in the form of experimental failure in natural resource management is actively discouraged by various laws and court rulings, and is perhaps impossible to entertain within the conservative culture of natural resource agencies. The central paradox is that “adaptive management cannot be implemented unless risk can be eliminated” (p. 97).

Balint and colleagues outline what they call an “enhanced learning network process” as a potential route through the morass of wicked problems. This process has two essential attributes. First, it engages all key stakeholders in a public context of mutual learning, exchange of views, and expression of values, all informed by the best available science. Second, the process develops natural resource decision-making procedures that provide many opportunities for public comment and generates various options for management consideration as well as further public scrutiny and debate. To analyze public input as part of the process, the authors advocate the use of formal, quantitative models of stakeholder preferences, called “preference elicitation models”—a particular social science technique borrowed from marketing and polling analyses.

Cultural values may not be amenable to preference elicitation models, however. Other ethnographically oriented approaches may be better suited to capture and analyze competing values, such as those found in Joanne Bauer, ed. *Forging Environmentalism* (2006). Regardless of the approach, Balint and colleagues demonstrate that the solutions to wicked problems must incorporate cultural values. To ignore them is to be oddly unempirical and profoundly unaware that all natural resource problems are fundamentally human problems. Both specialist and general reader will find much to engage them by reading *Wicked Environmental Problems* as they participate in their own enhanced learning networks.

---

David Jenkins <David\_Jenkins@fws.gov>, Office of Subsistence Management, US Fish and Wildlife Service, 1011 East Tudor Rd, Anchorage, AK 99503, USA.

**Electronic Green Journal, Issue 34, Winter 2012, ISSN: 1076-7975**